

IN THE CLAIMS

Claims 3 through 18 are pending in this application. Please cancel Claims 1 and 2 without prejudice or disclaimer, amend Claims 3 through 17, and add new Claim 18 as follows:

1-2. (Canceled)

3. (Currently Amended) A location calculation method using propagation delay time of signals transmitted between a plurality of base stations and a mobile terminal, comprising:

a first step of measuring reception timing of signals transmitted between said plurality of base stations and said mobile terminal;

a second step of estimating, according to the result of the measurement of the reception timing of signals obtained by said first step, an erroneous result of measurement;

a third step of removing the result of the measurement estimated as the erroneous result of measurement by the second step from the result of the measurement of the reception timing of signals obtained by said first step, and thereby calculating the location of the mobile terminal; and ~~A location calculation method for calculating according to claim 1, further comprising~~

a fourth step of determining a standard ~~wireless transmitter~~ base station among [a] said plurality of base stations ~~wireless transmitters from which signals are received by the reception point~~, wherein

said second step includes estimating[;], according to a result of a determination of distance measurement whether or not a triangle is formed, using an estimated distance between the ~~reception point~~ mobile terminal and the standard base station ~~wireless transmitter~~, an estimated distance between the mobile terminal ~~reception point~~ and a

base station ~~wireless transmitter~~ used as an object of the estimation, and a distance between the standard base station ~~wireless transmitter~~ and the base station ~~wireless transmitter~~ used as the [an] object of the estimation[;], wherein [that] the result of the determination of distance measurement for the ~~of any~~ base station ~~wireless transmitter~~ used as the [an] object of the estimation not satisfying the triangle forming condition is an erroneous result of measurement.

4. (Currently Amended) The [A] location calculation method ~~for calculating~~ according to claim 3 [1], wherein:

a plurality of sectors each of which is formed by a base station ~~the wireless transmitter~~ constitute a wireless facility; and

said second step further includes determining ~~estimating~~, according to a result of a comparison between [a] the result of the determination of distance measurement ~~of distance~~ regarding each sector of one wireless facility and a predetermined threshold value, whether the result of the determination of distance measurement regarding the wireless facility [as] is an erroneous result of measurement.

5. (Currently Amended) The [A] location calculation method ~~for calculating~~ according to claim 4, wherein the result of the determination of distance measurement ~~of distance~~ regarding each sector is compared, as a difference between a delayed time of the respective sector, with a predetermined threshold value.

6. (Currently Amended) The [A] location calculation method ~~for calculating~~ according to claim 3 [1], wherein:

a plurality of sectors each of which is formed by a base station ~~the wireless transmitter~~ constitute a wireless facility; and

said second step further includes selectively estimating, according to a result

of a comparison between S/N ratios regarding the respective sectors of one wireless facility, the result of the determination of distance measurement regarding a sector having a smaller S/N ratio or a sector having longer delay time between the sectors as an erroneous result of measurement.

7. (Currently Amended) A location calculation method using propagation delay time of signals transmitted between a plurality of base stations and a mobile terminal, comprising:

a first step of measuring reception timing of signals transmitted between said plurality of base stations and said mobile terminal;

a second step of estimating, according to the result of the measurement of the reception timing of signals obtained by said first step, an erroneous result of measurement;

a third step of removing the result of the measurement estimated as the erroneous result of measurement by the second step from the result of the measurement of the reception timing of signals obtained by said first step, and thereby calculating the location of the mobile terminal; and ~~A location calculation method for calculating according to claim 1, further comprising~~

a fourth step of calculating a direction of a base station ~~wireless transmitter~~ from the mobile terminal reception point, wherein

said second step selecting, as base stations constituting two sectors of a same wireless facility, a first base station and a second base station ~~wireless transmitters~~ existing within a predetermined angle by using the direction of the base station from the mobile terminal ~~wireless transmitter as a standard direction~~, obtaining a difference between a first distance between the mobile terminal reception point and [a] the first base station ~~wireless transmitter selected as one existing in a near direction~~ and a second distance between the mobile terminal reception point and [a] the second base station ~~wireless transmitter~~, comparing the difference obtained with a predetermined threshold value, and determining the result of the difference obtained between the first distance and the second distance as an

erroneous result of measurement when the difference obtained between the first distance and the second distance is more than the predetermined threshold value ~~estimating the result of measurement of the wireless transmitter~~ according to a result of the comparison.

8. (Currently Amended) The [A] location calculation method ~~for calculating~~ according to claim 7, wherein the difference between the distance between the ~~reception point~~ mobile terminal and the first base station ~~wireless transmitter~~ and the distance between the ~~reception point~~ mobile terminal and the second base station ~~wireless transmitter~~ is compared, as a difference in delay time between a signal received from the first base station ~~wireless transmitter~~ and a signal received from the second base station ~~wireless transmitter~~, with a predetermined threshold value.

9. (Currently Amended) The [A] location calculation method ~~for calculating~~ according to claim 7, further comprising a step of estimating a base station ~~wireless transmitter~~ nearest to the mobile terminal ~~reception point~~, removing information associated with a signal received from the nearest base station ~~wireless transmitter~~, and selecting base stations ~~wireless transmitters~~ existing in one direction.

10. (Currently Amended) The [A] location calculation method ~~for calculating~~ according to claim 3 [1], wherein said second step includes calculating a position of the mobile terminal ~~reception point~~ and a likelihood by excepting a result of measurement of a selected base station ~~particular wireless transmitter~~, selecting a maximum value of the calculated values of the likelihood, comparing the maximum likelihood value with other values of the likelihood, and estimating, according to a result of the comparison, the result of measurement of the selected base station ~~particular wireless transmitter~~ associated with the maximum likelihood value as an erroneous result of measurement.

11. (Currently Amended) A location calculation apparatus for calculating, by

using propagation delay time of signals transmitted between a plurality of base stations and a mobile terminal, a location of said mobile terminal ~~received from a plurality of wireless transmitters, a location of a reception point of receiving the signals~~, comprising:

reception timing measuring means for measuring reception timing of signals received from said plurality of base stations ~~wireless transmitters~~;

erroneous measurement estimating means for estimating, according to the result ~~results~~ of measurement of the reception timing of signals measured by said reception timing measuring means, an erroneous result ~~results~~ of measurement, said erroneous measurement estimating means for estimating, according to a result of a determination of distance measurement whether or not a triangle is formed, using an estimated distance between the mobile terminal and a standard base station, an estimated distance between the mobile terminal and a base station used as an object of the estimation, and a distance between the standard base station and the base station used as the object of the estimation, wherein the result of the determination of distance measurement for the base station used as the object of the estimation not satisfying the triangle forming condition is an erroneous result of measurement; and

location calculating means for removing the result ~~results~~ of measurement estimated as the erroneous result of measurement ~~results~~ by said erroneous measurement estimating means from the results of measurement of the reception timing of signals obtained by said reception timing measuring means, and thereby calculating the location of said mobile terminal ~~location calculating means~~.

12. (Currently Amended) A software product for executing, by a computer, to ~~make a computer execute~~ a location calculation method for calculating, by using signals transmitted between a plurality of base stations and a mobile terminal, a location of said mobile terminal ~~received from a plurality of points, a location of a reception point of receiving the signals~~, comprising:

a first step of measuring reception timing of signals received from said

plurality of base stations points;

a second step of estimating, according to the result ~~results~~ of measurement of the reception timing of signals obtained by said first step, an erroneous result of measurement; and

a third step of removing the result ~~results~~ of the measurement estimated as the erroneous result of measurement ~~results~~ by the second step from the result ~~results~~ of the measurement of the reception timing of signals obtained by said first step, and thereby calculating the location of said mobile terminal ~~reception point, wherein~~

said second step includes estimating, according to a result of a determination of distance measurement whether or not a triangle is formed, using an estimated distance between the mobile terminal and a standard base station, an estimated distance between the mobile terminal and a base station used as an object of the estimation, and a distance between the standard base station and the base station used as the object of the estimation, wherein the result of the determination of distance measurement for the base station used as the object of the estimation not satisfying the triangle forming condition is an erroneous result of measurement.

13. (Currently Amended) The [A] software product according to claim 12, further comprising a step of calculating, according to propagation delay time of signals received from the plurality of base stations points, the location of said mobile terminal ~~the reception point of the signal~~.

14. (Currently Amended) The [A] software product according to claim 12, wherein the plurality of base stations points are wireless transmitters.

15. (Currently Amended) The [A] software product according to claim 12, wherein the computer serves as a location calculating apparatus.

16. (Currently Amended) A control apparatus comprising a central processing unit (CPU) and a memory to store a program, wherein:

said memory has stored a program for executing by to make the CPU: execute

a first step of measuring reception timing of signals transmitted between a plurality of base stations and a mobile terminal ~~received from a plurality of wireless transmitters;~~

a second step of estimating, according to the result ~~results~~ of measurement of the reception timing of signals obtained by said first step, an erroneous result of measurement; and

a third step of removing the result ~~results~~ of measurement estimated as the erroneous result of measurement ~~results~~ by the second step from the result ~~results~~ of measurement of the reception timing of signals obtained by said first step, and thereby calculating the location of said mobile terminal ~~reception point; and~~ ,

wherein said second step includes estimating, according to a result of a determination of distance measurement whether or not a triangle is formed, using an estimated distance between the mobile terminal and a standard base station, an estimated distance between the mobile terminal and a base station used as an object of the estimation, and a distance between the standard base station and the base station used as the object of the estimation, wherein the result of the determination of distance measurement for the base station used as the object of the estimation not satisfying the triangle forming condition is an erroneous result of measurement, and

wherein said CPU executes said program ~~kept~~ stored in said memory.

17. (Currently Amended) The [A] control apparatus according to claim 16, wherein said control apparatus is constructed as a semiconductor integrated circuit.

18. (New) A location calculation method using propagation delay time of signals transmitted between each of a plurality of base stations and a mobile terminal, comprising:

a first step of measuring reception timing of signals transmitted between a

base station of said plurality of base stations and said mobile terminal to obtain a first distance between the base station of said plurality of base stations and the mobile terminal;

a second step of determining an incorrect distance to be removed, including the sub-steps of:

(A) selecting a standard base station from said plurality of base stations;

(B) obtaining both a second distance between the base station of said plurality of base stations and the standard base station, and a third distance between the standard base station and the mobile terminal; and

(C) determining whether the first distance, the second distance and third distance form a triangle, whereby an incorrect distance is determined when the first distance, the second distance and the third distance do not form a triangle, thus finding an incorrect distance in the first, second and third distances in accordance with the amounts of the first, second and third distances; and

a third step of calculating a position of the mobile terminal, by using propagation delay time of signals transmitted between each of the plurality of base stations and the mobile terminal, according to a result of the second step by removing any said incorrect distance found in the second step.